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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,399	08/02/2006	Hans-Peter Borufka	011235.57084US	2742

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EXAMINER

EDGAR, RICHARD A

ART UNIT	PAPER NUMBER
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3745

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/31/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/560,399

Applicant(s)

BORUFKA ET AL.

Examiner

Richard Edgar

Art Unit

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 6-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/12/2005.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims.

Therefore,

1. the blades changing discontinuously (claim 1);
2. the several blade rings arranged axially behind one another, wherein within each blade ring, the blades are arranged at a different distance from one another (claim 1);
3. the arrangement of blades within a respective blade ring is different for each of the blade rings (claims 7 and 16);
4. the turbine or the compressor rotor (claim 8);
5. the airplane engine (claims 9, 11 and 13);
6. the fan rotor (claim 10);
7. the second blade ring (claims 14 and 17); and
8. each blade ring having the pattern described in claim 15 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

The drawings are objected to under 37 C.F.R. §1.84(u)(2) because the view numbers are not larger than the reference characters (see reference characters 10 and 11 in FIG. 1 and 10 in FIG. 2).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3745

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 3,006,603 (Caruso et al. hereinafter) in view of European Patent Application EP 921 274 A2 (El-Aini et al. hereinafter).

Caruso et al. teach a turbomachine having blades (see col. 7, line 72 through col. 8, line 11) arranged in accordance with a frequency modulation theory whereby the pitch of the blades varies continuously in the circumferential direction (see col. 3, lines 24-27). Caruso et al. teach a modulation frequency of 1 and thereby not necessarily a balanced rotor.

El-Aini et al. teach a turbomachinery rotor 34 with blades 36 arranged to tune out vibrations by arranging the blades 36 at specific pitches 42 based on the application at hand (see col. 5, lines 2-4). The rotor in one embodiment is an integrally bladed rotor (see paragraphs 12 and 21). El-Aini et al. also teach to make rotor haves symmetric for the purpose of balancing the rotor (see paragraph 20). El-Aini et al. show a gas turbine engine comprises a fan rotor 12, 14, a compressor rotor 16 and a turbine rotor 20, 22 in an aircraft engine (see nozzle 26). FIG. 1 shows multiple fan rotors 12, 14 and compressor rotors 16 axially arranged in series.

Art Unit: 3745

Since Caruso et al. teach a turbomachinery rotor with blades arranged in a continuously decreasing/increasing pitch around the circumference for reducing vibrations, and El-Aini et al. teach a rotor with varied blade pitches based on the application, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify Caruso et al. to be a rotor for an aircraft engine in either the fan, compressor or turbine section, whereby rotor halves are symmetric with respect to the blade pitches, for the purpose of balancing the rotor. Furthermore, since Aini et al. show that the fan and compressor section have axially arranged rotors, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to apply the single rotor teaching of Caruso et al. to each rotor, as shown by Aini et al. for the purpose of reducing vibration at each rotor stage.

Examiner Note

The recited first and second distances in claims 14, 15 and 17 are not limited to being examined as different distances as Applicants may have intended. Rather, said distances may be interpreted as being the same distance.

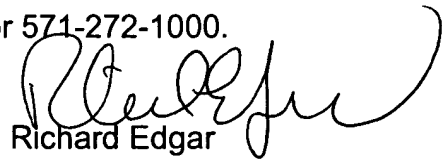
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Edgar whose telephone number is (571) 272-4816. The examiner can normally be reached on Mon.-Thur. and alternate Fri., 7 am- 5 pm EST.

Art Unit: 3745

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Richard Edgar
Primary Examiner
Art Unit 3745

RE